VAD

Valve Audio Devices

TAD-1S Digital to Analogue Converter

Valve DAC

User Manual

Version 1.3

Introduction

TAD-1S valve DAC is an exquisitely engineered, hand-built, point-to-point wired unit employing specifically selected components.
It is designed for the purist and refined over countless hours to produce exceptional high definition sound with unparalleled musicality.

Every component is selected with sound quality as the highest priority, and its specially designed dual mono valve analogue stage, ultra-short “signal path” and advanced dual mono D/A conversion stage provide the optimum environment for digital audio playback from variety of signal sources.

When matched with similarly high quality components, the TAD-1S achieves a standard of micro-dynamics, resolution and speed to satisfy the most discerning of audiophiles. Closing the gap to the original sound, delivering unparalleled musicality, with all of the original nuances, has now become closer than ever.

The TAD-1S stands comparison with the world’s finest reference DACs – regardless of price.

The TAD-1S is more than just another D/A Converter.

The TAD-1S comes with a 7-year Manufacturer Warranty. It has been designed and built with reliability in mind and will last a lifetime with appropriate care.

Data Formats

The TAD-1S is capable of automatic recognition of sampling rates from 32 to 192kHz and bit rates of 16-24bit from SPDIF/AES3 digital audio compatible sources and up to 24bit/192kHz from USB Audio 2.0

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UNPACKING

- In the flight case you will find the following:
- VAD TAD-1S valve DAC
- Power Cord
- Hex key (for removing the valve cover)
- Owner's Manual

- Remove all contents. Keep the flight case in case of need to ship the TAD-1S
  Place the TAD-1S on a sturdy surface (e.g. hi-fi rack or isolation platform) and plug in the power

Connection

VAD TAD-1S inputs

Digital inputs:

Use a screened, twisted pair cable from the digital output of your CD transport or CD player to the AES/EBU digital input of the TAD-1S (TAD1S- AES/EBU socket is a receptacle type)
Use a RCA plug terminated, coaxial interconnect of your choice for the COAXIAL digital input
The cable for COAXIAL input should not be longer than 1.5m (5 feet) for the best result
For USB input – use USB 2.0 cable, USB type B plug terminated for the DAC side
Toslink input - use preferably multi-strand glass fibre type, optical audio cable (24bit/192kHz sample rate playback through Toslink cannot be guaranteed)
BNC input – use same type of your preferred coaxial cable as for the RCA Coaxial input, terminated with the BNC plug

TAD-1S has two toggle switches (1, 2) on the back panel
Switch 1 (three position) will let you choose between the AES/COAX, BNC and Toslink inputs, toggle switch 2 (ON-OFF) - when activated disconnects all the SPDIF compatible inputs and connects (via internal I2S interface) TAD-1S asynchronous USB Audio module direct to the dual mono DACs inputs.
The TAD-1S will automatically choose the BNC connected digital signal source when inputs switch 1 is in the centre `neutral` position,
In `AES/COAX` switch position, the DAC will automatically choose an active signal source between the two

Audio outputs:

For balanced outputs use screened, twisted pair cables fitted with 3pin XLR plug (receptacle type plug for the TAD-1S end)
or
RCA analogue interconnects for single ended outputs
(RCA cables ideally no longer than 1.5m / 5 feet) between the Audio Outputs of the TAD1 and the line level input of your preamplifier or integrated amplifier.

When using the balanced connection, the pin 2 should be “hot”, pin 3 “cold” and pin 1 is “ground”. Make sure this complies with your other audio equipment. (Consult with your dealer for the modifications of the cable pin connection if necessary)

The balanced and unbalanced audio outputs should not be connected/used simultaneously.

All digital apparatus e.g. CD/DVD Transport/Player, Music Server, computer based music file player via USB, LD player, Satellite Set Top Box, etc. may be connected with the TAD-1S as long as their bit resolution and sampling rate is under or equal to 24Bit/192kHz. Most CD/DVD transports and players are equipped with a minimum of one coaxial SPDIF output.
Most high quality CD transports are also equipped with AES/EBU output.

TAD-1S digital audio connectivity:

AES/EBU balanced digital audio input
BNC digital audio input
COAXIAL digital audio input
Toslink optical digital audio input
Computer based music file player via USB 2.0 (up to 24bit/192kHz)

Before switching on

Front Panel

Switching on / off

Powering ON: “Flip” the mains power switch on the rear panel of the TAD-1S followed by pushing the “Power” button on the front panel.

Powering OFF: press the “Power” button on the front panel of the TAD-1S

When in use at home, there is no need to switch OFF the main switch on the rear panel – use the back panel switch to completely power off the unit when leaving the house for longer.

IMPORTANT:

Power ON the TAD-1S approx. 2 min. BEFORE switching ON your other audio components such as amplifiers.

Make sure that the Volume control of your amplifier or pre-amplifier is in the minimum position (volume turned down).

Switch your other audio components such as amplifiers OFF before turning OFF the TAD-1S

Whilst the TAD-1S will sound superb from the moment it is switched on, due to the nature of valves, its sound will improve even further as it “warms up”.
After 20 minutes it will be “on song “, after approximately 40 minutes it will reach its peak performance.

To maximise the “life span” of the valves, it is recommended to minimise the number of times that the unit is switched on and off - e.g. where several listening session may be planned during the course of the day, it is better to turn the unit on before the first session and only turn it off at the end of the final session – rather than on and off at the end of each session. Ideally, the TAD-1S would be kept switched on.

The TAD-1S has the power consumption of 55W during normal operation (with signal connected)

Gain Control

The signal output level (Gain) control is located in the centre of the front panel, it is designed to match the output level of the TAD-1S to a wide range of preamplifiers and integrated amplifiers, but can also facilitate direct connection to a power amplifiers.

Please note that when our Gain is being used as a volume control, a `pop` noise will occur during adjustment as the stepped attenuator in TAD-1S is inter-stage directly coupled. This, though audible, does not carry any risk for your power amplifier or speakers.

In most circumstances, when used with a preamplifier or integrated amplifier, the output level of 2Vrms will be achieved at the 12 o'clock position and pro audio level of 4.2Vrms at 3 o'clock (approximate)

Lock

The Lock indicator will "light up" when the compatible digital signal is detected and the input of DAC is synchronised with digital signal source.

The DAC is now ready to operate.

Reset

TAD-1S is equipped with a `reset` switch (non-latching) located on the back plate. Occasionally, the digital receiver may not lock onto the signal during power up cycle (or `hot` swapping digital input cables) Should this occur, simply single press and release the `reset` switch. This will restart the receiver's automatic 'signal locking' procedure.

Other Information

Placement

Apart from the tubes which, by their very nature are designed to run hot, the TAD-1S is relatively cool running and operates well below the maximum allowed temperature for consumer audio.

It should be positioned so as to allow free airflow around it and not placed on top of other equipment – particularly Class A amplifiers which run hot.

Possible vibrations should be minimised as far as possible. For example; The TAD-1S must not be placed on top of speakers. Ideally, the unit should be placed in line with (or slightly behind) the plane of your speakers and additional benefits may be gained by placing it on a good quality isolation platform.

Tube "rolling" and replacement.

Only the front pair of matched 6N8S valves can be replaced with the same type or 6SN7, 6SN7GT or 5692 or CV181.
Please note: The protective cover will not fit over the taller CV181 valves.

Use of any other valve type will damage the circuit and invalidate the warranty. In case of "valve rolling", the use of octal valve socket savers is strongly advisable, as any damage to the valve sockets caused by "valve rolling" is not covered by the warranty.

The matched pair of 6N6P should be replaced with the same type only. The pair of EZ35 rectifiers can be replaced with the same type or 6C5S, CV574 or 6X5GT rectifiers.

IMPORTANT!

Fuse.

The unit is fitted with a **1A** fuse which is located in the IEC mains socket on the back panel – **this must be replaced only with the same amperage value!** (a spare is provided in the fuse "drawer"). In case of subsequent fuse failure – the unit has to be send for repair

Earth connection – **the unit must be earthed**, this is provided by the safety earth contact in IEC mains socket – make sure that your home mains electrical installation has safety earth connection in order.

Removing the Valve Cover.

The valve cover is secured to the top of the unit by way of 4 hex bolts being accessible through slots in valve cover. The cover may be removed in order to facilitate tube replacement by using the supplied long hex key (2mm) tool to undo such bolts.

Specifications

Audio Signal Frequency Range:	5Hz - 20 kHz
Dynamic range:	113dB

Digital inputs: 1x AES/EBU, 1x RCA Coaxial, 1x BNC, 1x Toslink optical, 1x asynchronous 24bit/192kHz USB 2.0 input

Output Signal Level (adjustable via gain control):	50mV to 4.4Vrms (approximate)
Analogue Output:	XLR (balanced) max. 4.5Vrms- adjustable
	Single ended RCA outputs 50mV to 4.4Vrms –adjustable
Output impedance:	<600ohms
Total correlated jitter:	<60ps
Digital input word widths supported	16-24bit
Digital input sampling frequencies supported 32kHz-192kHz	all sample rates between and included
Power consumption	55W
AC mains operation voltage	factory set for 220-240V/50/60Hz

(100-120V/50/60Hz factory set version can be ordered at no additional cost)

Dimensions:	H 15cm x W 43.5cm x D 29cm
Weight (net):	12.8kg
Shipping weight	18kg

Valve Audio Devices (VAD)

Warranty Information

Valve Audio Devices Limited warrants this product to be free from defects in materials and workmanship for a period of seven (7) years from the date of purchase (subject to the terms set forth below). Valve Audio Devices will repair or replace (at VAD option) this product or any defective parts in this product. Warranty periods may vary from country to country. If in doubt consult your dealer and ensure that you retain proof of purchase. To obtain warranty service, please contact the VAD authorized dealer from which you purchased this product. If your dealer is not equipped to perform the repair of your VAD product, it may be returned by you or your dealer to Valve Audio Devices or an authorized VAD service agent.

You will need to ship this product in either its original packaging or packaging affording an equal degree of protection.

No later than 30 days after the product has been delivered to the Customer, the Customer must have returned the Warranty Registration Form to Valve Audio Devices Limited; (included as the last page of this manual)

Proof of purchase in the form of a bill of sale or receipted invoice, which is evidence that this product is within the warranty period, must be presented to obtain warranty service.

This Warranty is invalid if the factory-applied serial number and/or Warranty sticker has been altered or removed from this product This Warranty is invalid if the proof of purchase cannot be presented. A return product must be accompanied by a written description of the defect.

Any changes or modifications to the product – apart from replacing the tubes as directed in the user manual invalidate the 7 year warranty.

This Warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of, or to any part of, the product. This Warranty does not cover damage due to improper operation, maintenance or installation, or attempted repair by anyone other than Valve Audio Devices or a VAD dealer, or authorized service agent which is authorized to do Valve Audio Devices warranty work. Any unauthorized repairs will void this Warranty. This Warranty does not cover products sold AS IS or WITH ALL FAULTS.

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Some Countries and US states do not allow the exclusion or limitation of incidental or consequential damages or implied warranties so the above exclusions may not apply to you. This Warranty gives you specific legal rights, and you may have other statutory rights, which vary from state to state or country to country.

For any service, in or out of warranty, please contact your dealer.

Valve Audio Devices reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

TAD-1S DAC is a UK Patent Office international registered design.

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Valve Audio Devices (VAD) Warranty Registration Form

First Name:

Title

Last Name:

Full address (number and street):

City:

Postcode/Zipcode:

State/Province:

Country:

Phone Number:

E-mail Address (receive up-to-date information on new products and promotions):

Date of Purchase (day/month/year):

Please indicate the serial number and warranty number of this product. (Found on the ID labels attached to your product).

S/N No. Warranty No.

You may receive information on a new products and special promotions. Email or call us to update your communication preferences.

We will not share any of your information with other companies for any marketing purposes

If you do not wish us to send you VAD product updates, please mark this box

Please complete the form upon purchasing your product.
Detach and send it within 30days to:
Valve Audio Devices Limited,
17 Ashby Road, Welton, Daventry, Northamptonshire. NN11 2JS